

# CAMP CROSS (PWSNO 1280025) SOURCE WATER ASSESSMENT REPORT

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December 12, 2001



## State of Idaho Department of Environmental Quality

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## SOURCE WATER ASSESSMENT FOR CAMP CROSS

Under the Federal Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. The Idaho Department of Environmental Quality is completing the assessments for all Idaho public drinking water systems. The assessment for your particular drinking water source is based on a land use inventory within the well recharge zone, your water quality history, construction characteristics associated with your well or wells, and site specific sensitivity factors associated with the aquifer your water is drawn from.

This report, *Source Water Assessment for Camp Cross* describes the public drinking water source, potential contaminant sites located within a 1000-foot boundary around the drinking water source, and the susceptibility (risk) that may be associated with any potential contaminants. This assessment, taken into account with local knowledge and concerns, should be used as a planning tool to develop and implement appropriate protection measures for this system. **The results should not be used as an absolute measure of risk and are not intended to undermine the confidence in your water system.**

**Potential Contaminant Inventory.** The Camp Cross public water system, located on Lofts Bay on Lake Coeur d'Alene in Kootenai County, Idaho, has 8 connections serving a seasonal facility owned by the Episcopal Diocese of Spokane. The capacity of the camp is 120 people. The camp is only accessible by boat.

The recharge zone for the well was modeled as 1000-foot radius circle with the well as its center. Potential contaminant sources documented inside the well recharge zone include components of the camp's septic system and the surface waters of Lake Coeur d'Alene, about 150 feet from the well. The well is potentially ground water under direct influence of surface water. It needs to be tested before a final determination of whether the lake influences it can be made.

**Water Quality History.** Camp Cross, under regulation as a non-community transient public water system, is required to monitor quarterly for bacterial contamination during its operational season. Total coliform bacteria were present in distribution system samples tested in July 1999, August 1996 and July 1993. Treatment of the water is not required. The camp has tested annually for nitrates since 1995. The nitrate concentration was below detection limits in 1995, 1997 and 1998. The concentration was 0.012 mg/l and 0.038 mg/l in 1996 and 2000 respectively. No results are on file for 1999. The Maximum contaminant Level (MCL) for nitrate is 10.0 mg/l.

**Well Construction.** The Camp Cross well was drilled at an unknown date to a depth of 320 to 340 feet. Because the well log is not available, several details used to assess vulnerability to contamination are unknown. The well has a 6-inch casing extending 22 inches above ground surface and fitted with a vented sanitary well seal. The well is equipped with a 3 horsepower submersible pump set at approximately 300 feet and capable of pumping about 12 GPM

A sanitary survey conducted April 12, 2000, found the water system to be mostly in compliance with *Idaho Rules for Public Drinking Water Systems*.

**Well Site Characteristics.** Soils in the well recharge zone are predominately poorly drained to moderately well drained. Soils in this drainage class protect against migration of contaminants toward the well. The soil structure above the water table at the well site, depth to ground water and the presence or absence of a thick sedimentary layer to prevent vertical transport of contaminants from the surface to the ground water are unknown.

**Susceptibility to Contamination.** Incorporating information from the public water system file and the potential contaminant inventory DEQ analyzed the susceptibility of the Camp Cross well to contamination. The well as at moderate risk from all classes of regulated contaminants. The susceptibility analysis worksheet for your well on page 5 this report shows how your well scored. Formulas used to compute the final susceptibility scores are at the bottom of the worksheet. . The system construction and hydrogeologic sensitivity portions of the analysis rely heavily on information derived from the well log. Conservative scores are assigned to unknown risk factors. The susceptibility rating may be revised additional information becomes available during the review process.

**Drinking Water Protection.** This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

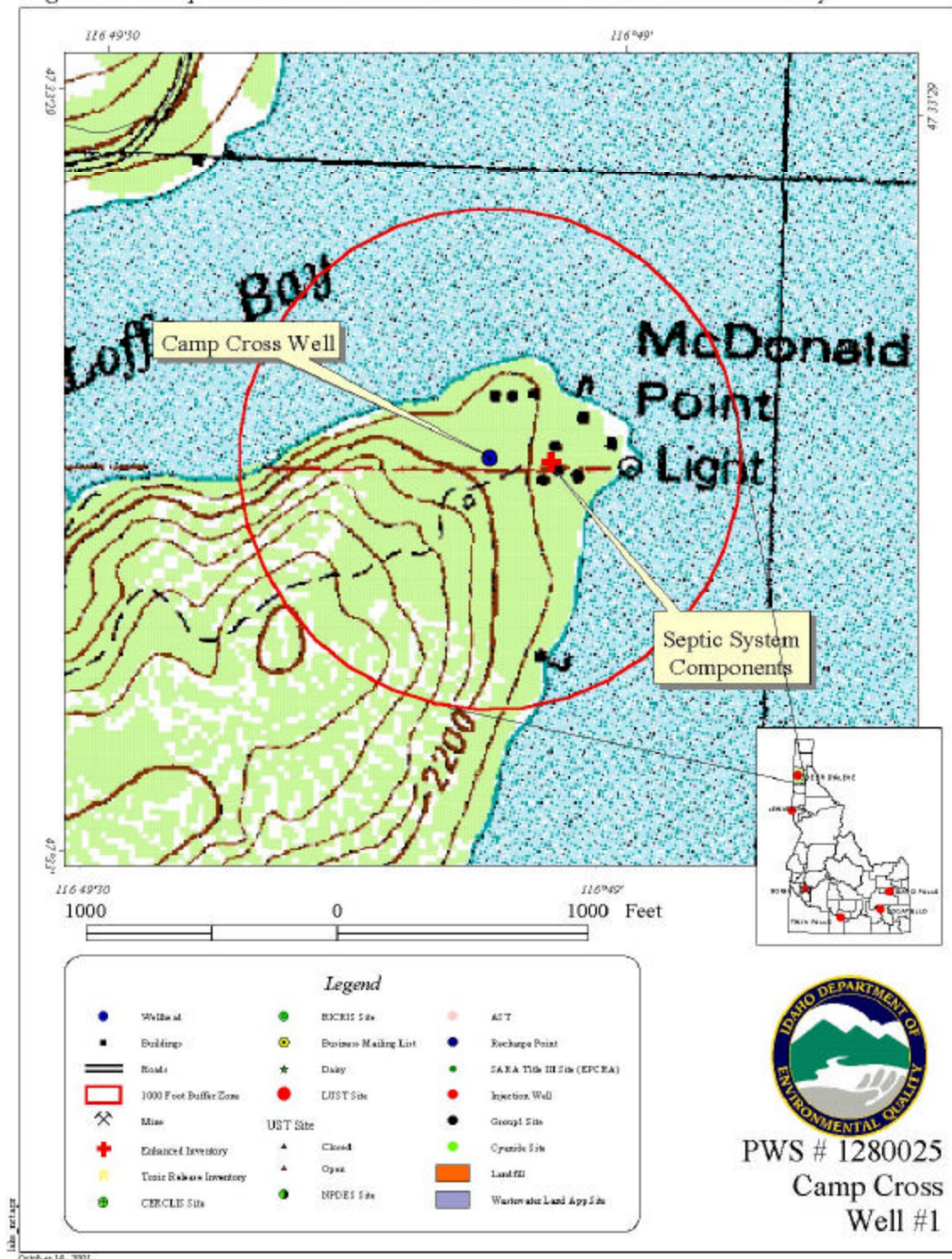
For Camp Cross drinking water protection activities should focus first on the improvements outlined in the April 2000 sanitary survey. Reservoir repairs are important for keeping surface contaminants out of the distribution system. The survey also recommends enclosing the well in a locked well house with a poured concrete floor that drains to daylight. A well house protects the wellhead from wild life and from surface runoff. The camp also needs to test the well to determine whether it is influenced by the surface waters of Lake Coeur d'Alene.

Ground water stewardship should be incorporated into the activity curriculum for campers of all ages. Because the water system may not have direct jurisdiction over the entire recharge zone for its well, it will be important to form partnerships with neighbors, and public agencies to regulate land uses that can degrade ground water quality. The goal of source water protection is to maintain current water quality for the future despite the changes we can expect with population growth in North Idaho.

For assistance in developing source water protection strategies please contact Tony Davis at the Coeur d'Alene Regional DEQ office at 208 769-1422.

**DEQ website:** <http://www.deq.state.id.us>

Figure 1. Camp Cross Delineation and Potential Contaminant Inventory.



**Ground Water Susceptibility**

Public Water System Name :

**CAMP CROSS**

Well # :

**WELL #1**

Public Water System Number :

**1280025**

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<b>1. System Construction</b>		<b>SCORE</b>			
Drill Date	UNKNOWN				
Driller Log Available	NO				
Sanitary Survey (if yes, indicate date of last survey)	YES 2000				
Well meets IDWR construction standards	UNKNOWN	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	UNKNOWN	2			
Highest production 100 feet below static water level	UNKNOWN	1			
Well located outside the 100 year flood plain	YES	0			
<b>Total System Construction Score</b>		<b>4</b>			
<b>2. Hydrologic Sensitivity</b>					
Soils are poorly to moderately drained	YES	0			
Vadose zone composed of gravel, fractured rock or unknown	UNKNOWN	1			
Depth to first water > 300 feet	UNKNOWN	1			
Aquitard present with > 50 feet cumulative thickness	UNKNOWN	2			
<b>Total Hydrologic Score</b>		<b>4</b>			
<b>3. Potential Contaminant / Land Use - ZONE 1A</b>		IOC	VOC	SOC	Microbial
		Score	Score	Score	Score
Land Use Zone 1A	WOODLAND	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
<b>Total Potential Contaminant Source/Land Use Score - Zone 1A</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Potential Contaminant / Land Use - ZONE 1B</b>					
Contaminant sources present (Number of Sources)	YES	1	0	0	1
(Score = # Sources X 2 ) 8 Points Maximum		2	0	0	2
Sources of Class II or III leacheable contaminants or Microbials	YES	1	0	0	
4 Points Maximum		1	0	0	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
<b>Total Potential Contaminant Source / Land Use Score - Zone 1B</b>		<b>3</b>	<b>0</b>	<b>0</b>	<b>2</b>
<b>Cumulative Potential Contaminant / Land Use Score</b>		<b>3</b>	<b>0</b>	<b>0</b>	<b>2</b>
<b>4. Final Susceptibility Source Score</b>		<b>9</b>	<b>9</b>	<b>9</b>	<b>9</b>
<b>5. Final Well Ranking</b>		Moderate	Moderate	Moderate	Moderate

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.27)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

**Final Susceptibility Ranking:**

0 - 5 Low Susceptibility  
 6 - 12 Moderate Susceptibility  
 > 13 High Susceptibility

## POTENTIAL CONTAMINANT INVENTORY LIST OF ACRONYMS AND DEFINITIONS

**AST (Aboveground Storage Tanks)** – Sites with aboveground storage tanks.

**Business Mailing List** – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

**CERCLIS** – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

**Cyanide Site** – DEQ permitted and known historical sites/facilities using cyanide.

**Dairy** – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

**Deep Injection Well** – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

**Enhanced Inventory** – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

**Floodplain** – This is a coverage of the 100year floodplains.

**Group 1 Sites** – These are sites that show elevated levels of contaminants and are not within the priority one areas.

**Inorganic Priority Area** – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

**Landfill** – Areas of open and closed municipal and non-municipal landfills.

**LUST (Leaking Underground Storage Tank)** – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

**Mines and Quarries** – Mines and quarries permitted through the Idaho Department of Lands.)

**Nitrate Priority Area** – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

**NPDES (National Pollutant Discharge Elimination System)** – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

**Organic Priority Areas** – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

**Recharge Point** – This includes active, proposed, and possible recharge sites on the Snake River Plain.

**RICRIS** – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

**SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities)** – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

**Toxic Release Inventory (TRI)** – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

**UST (Underground Storage Tank)** – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

**Wastewater Land Applications Sites** – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

**Wellheads** – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

**NOTE:** Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.